DEPARTMENT OF ENVIRONMENTAL PROTECTION
Montgomery County, Maryland

COMMON IMPACTS TO WATER QUALITY AND STREAMS

Urban Stormwater runoff is rainwater that goes into storm drains and then directly into county streams and rivers. The force of the runoff and pollutants carried in it can adversely affect the receiving streams, rivers, and the Chesapeake Bay. Stormwater runoff is the worst source of pollution to the County's streams and rivers. Likewise, the greatest problems from urban stormwater are: sediment, channel erosion and flooding, thermal pollution, toxics, nutrients, and impacts on dry weather flow. Storm drains in Montgomery County neither treat nor filter the runoff which enters them. *Here are some more ways that you can help reduce impacts to your local stream from storm water runoff.*

SEDIMENT

Sediment runoff is mud out of place, or soil on the move. The soil which erodes from disturbed construction sites or from bare, exposed surfaces anywhere is carried by rain runoff into the nearest storm drain and directly into a stream or river. Sediment in streams smothers bottom-dwelling fish, animals and aquatic plants, and increases cloudiness (turbidity) of the water. Sediment-laden water prevents sunlight from reaching aquatic plants and diminishes the ability of sight-feeding fish to see their prey. *There are many ways that you can help reduce sediment in runoff. The most important way is to eliminate bare areas in your yard and to use proper sediment controls, such as mulching or silt fences, whenever soil is disturbed and left bare.*

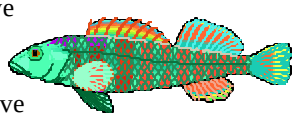
CHANNEL EROSION AND FLOODING

During heavy rain events, stormwater moves fast and in large volumes. When it passes through smooth concrete pipes of a storm drain it scours and erodes the receiving stream banks. Soil erosion from the stream banks results in widening of the water channel which is associated with elevated water temperatures, poor quality habitat, and greater flood-scour. In addition to causing channel erosion, too much runoff entering a stream too quickly can contribute to downstream flooding.

The amount of water from an overflowing stream may result in damage to the adjoining lands and roads. Grass and other vegetation slow down the velocity of storm water and cause it to spread out over a much larger area. *You can help limit storm flow increases and reduce soil erosion by directing the flows from rooftops and paved surfaces over lawns and other vegetated areas to reduce storm water velocity and volume.*

THERMAL POLLUTION

Thermal pollution occurs when storm water enters the streams after flowing over asphalt, parking lots, and other non-porous surfaces which have been heated by the sun. Runoff can reach a temperature of 90 degrees before entering the stream; water above 70 degrees may be harmful to aquatic life. Some creatures, such as trout, are so sensitive to elevated water temperatures that they may perish even after the runoff mixes with stream water. *You can help reduce thermal impacts from storm water runoff by maintaining or replanting forested buffers to shade streams and drainage channels near your property. Another way is to direct rooftop runoff over vegetated areas rather than directly into the nearest storm drain.*



NUTRIENTS

Chemicals, such as nitrogen and phosphorus, are picked up by storm water as it flows over fertilized lawns and gardens. Nutrients also end up in storm drain systems when residents dump yard wastes into the inlets. These nutrients encourage an overabundant growth, called "blooms", of algae in waterways which cause several water quality problems. Algae blooms in streams, rivers, and the Bay block sunlight from reaching the natural submerged aquatic vegetation (SAV) which serve as food and habitat for aquatic creatures. When algae blooms die, oxygen from the stream water is used up in the resulting decomposition process. Depleted oxygen levels cause problems for aquatic life and can result in a noxious-smelling waterway. *You can help reduce nutrients harming our waterways by applying yard and garden fertilizers according to the manufacturer's directions --use only the proper amount (more is* ***not*** *better)--and avoid applying these products before a heavy rain.*

IMPACTS ON DRY WEATHER FLOWS

Storm water that is captured by the storm drain system and diverted to the nearest stream has little opportunity to soak into the soil and to increase the available groundwater (called groundwater recharge). Groundwater is important because it replenishes the flow of streams with cooler water during periods of hot and dry weather and prevents the loss of aquatic habitat due to low water levels and reduced stream flow. *You can help maintain dry weather flows by using rain barrels or by directing downspouts onto lawn and other vegetated areas to let the runoff soak down through the soil and into the groundwater.*

For information on other water quality educational activities within the County, visit our website at www.askdep.com or call the **Watershed Management Division at 240-777-7700**

askDEP.com